

# Useful Teaching Aids

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Architectural study collections have significant value for academic programs which focus on the history of building technology and for interpretive programs which are designed to promote an understanding of the construction chronology and restoration process for historic buildings. The use of architectural components, both *in situ* and as objects in a collection, was a critical factor in developing the two courses which I teach in the University of Pennsylvania's Graduate Program in Historic Preservation, "Early American Building Technology" and "Documentation and Site Analysis."

In my experience, it is important that a student learn about architectural elements and their methods of fabrication and assembly through firsthand examination of those elements in the context of a building. However, detailed information about the nature of specific materials and their interface with other materials and systems is often concealed. An architectural study collection, such as the one at Independence National Historical Park in Philadelphia, affords the opportunity to closely examine these materials as distinct objects and to understand their particular characteristics, the tools and processes used in shaping them, the techniques employed in connecting their component parts, and the methods by which they were linked to other materials in the

overall building system.

As an example, the general configuration of a wooden window unit may be readily apparent when that unit is in place in the exterior wall of a masonry building. What is probably not apparent, however, is the cross sectional dimensions of the head, sill and jambs, the details of the weight pockets and of the weights themselves, the species of wood, the composition of the moldings (i.e., cut from single block or applied), the type of nails used in assembling moldings, and the method of anchoring the frame to

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the wall. Examining the window as an independent object, rather than in context with other building components, will provide answers to these and other questions. In addition, comparison of this window to windows from buildings of different time periods will yield important information on stylistic, structural and functional changes which occurred in window frame and sash design over time.

When one considers the sheer number of individually-produced architectural components which could be the subjects of similar analysis and documentation, the importance of architectural study collections becomes abundantly clear. Our knowledge of the regional chronology for

design and construction of features such as timber framing connections, stairways, wood paneling, doors, wood moldings, decorative plaster, and roofing could be greatly expanded as a result of study collections.

As a case in point, an architectural study collection is currently being assembled by the Historical Society of Trappe as a part of the organization's project to restore the Henry Melchior Muhlenberg House located in the Borough of Trappe, Montgomery County, PA (figure 1). When restoration is completed, the building will incorporate a museum to interpret the life and contributions of the Muhlenberg family and to inform the visitor, through the architectural study collection, about the process of analyzing, documenting and restoring a historic building.

Built c. 1755, the building served as the residence of Reverend Henry Melchior



Fig. 1. Muhlenberg House, Principal Facade, c. 1755. The Muhlenberg House is 31'-0" x 39'-0" in plan. The red sandstone is laid in a coursed ashlar pattern on the front facade above the water table. All other facades are laid in a rubble pattern. Drawing by Christina Henry, John Milner Architects, Inc.



**Fig. 2.** This photo is of one corner of the exhibit which occupied the second floor galleries of the museum. In addition to the architectural collection, the exhibit included manuscripts, paintings, furniture, and personal objects of Reverend Muhlenberg and his family. The wood architectural artifacts shown in the photograph include original shingles, sections of wood window trim, the stairway newel post (long object on the left) and a cast iron stove plate. Each object was keyed to floor plans to indicate its original position in the house. Photo courtesy Berman Museum of Art

Muhlenberg who was the patriarch of the Lutheran Church in America and of a family of many prominent clergymen, statesmen and scientists. Apparently designed to accommodate multiple living units, it represents a rare building type in the history of Pennsylvania architecture. Following the Muhlenberg family's residency from 1776 to 1802, the house underwent a series of alterations which disguised its 18th-century origins. The most significant of these changes occurred c. 1860 when the roof was raised by one-half story, the windows and doors were replaced, the stone exterior walls were stuccoed, and the interior floor plan was modified.

In order to determine the building's original appearance and assess the impact of the subsequent alterations, archival research, archeological excavations, and architectural investigations were commenced in 1989. Reverend Muhlenberg kept detailed journals of his daily activities and these contain many entries which pertain to his use and care of the house. The ongoing archeology, which is being coordinated by Walter Payne, is yielding important information about the evolution of the house and site.

The extensive architectural investigations, carried out in part by my "Documentation and Site Analysis" classes from the University of Pennsylvania, have revealed an extraordinary amount of data and artifacts on which to base a clear construction chronology for the house. An unexpected benefit of these investigations is that during the major alterations of c. 1860, the workmen salvaged and reused a great number of original c. 1755 architectural components including framing members, window frame sections, doors, window and door casings, cabinetry sections, stairway features, clothes peg rails, plaster lath, shingle lath and hearth bricks.

These varied components have become an architectural

study collection with two basic functions. First, each item has been carefully studied to establish its previous location and purpose within the context of the original building, and provide evidence of original finishes to inform the restoration. Second, the collection will become the nucleus of an interpretive exhibit to illustrate the materials, technology, and procedures employed by the craftsmen who built the original c. 1755 building as well as those who made the later modifications. In addition, it will be used to explain the process by which historic buildings are analyzed, documented, and restored. Since many of the components are fragments of what were originally larger features, it was decided to incorporate them in an educational exhibit rather than to incorporate them in their original context as part of the building restoration.<sup>1</sup>

One of the components of the Muhlenberg collection is a 3" x 3" x 8'-0" long piece of oak which served as the newel post for the original stair connecting the second floor and attic. That stair was removed in c. 1860 and the newel post was reused as a stud in new attic partitioning. The post contained much valuable information including paint lines establishing the dimensions and juxtaposition of treads and risers, incised scribe lines depicting the carpenter's procedure for laying out the stair, marks indicating type and location of door hardware and original painted surfaces.

The discovery, identification, and analysis of this single artifact was one of many extremely valuable educational experiences for the students who participated in the project. The interpretive exhibit being planned for the Muhlenberg House study collection will ensure that these educational experiences will continue. In fact, the collection was featured in a recent exhibition, *Henry Melchior Muhlenberg—250th Anniversary* at the Berman Museum of Art at Ursinus College in Collegeville, PA (figure 2).

<sup>1</sup> The most significant pieces from the collection will be on permanent exhibit in the Muhlenberg House. The entire collection is owned by the Historical Society of Trappe whose offices, museum, and library are housed in the Dewees Tavern (located a few doors down from the Muhlenberg House).

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